

pad actuation with the stowable remote keyboard disposed within the body of the notebook according to the principles of the present invention;

FIG. 2 is a perspective view of the foldable display screen folded back and disposed before the cover of the notebook computer for touchpad actuation with the stowable remote keyboard disposed before or in front of the display screen and over the base of the computer according to the principles of the present invention;

FIG. 3 is a view of the notebook with the cover partially closed and the display screen laid flat and disposed before the notebook computer for touchpad actuation according to the principles of the present invention;

FIG. 4 is an alternate embodiment of the notebook computer with the display and cover attached to pivot about hinged portions and to be detachable from the base section; and

FIG. 5 is a view of the notebook computer of FIG. 4 displayed in a closed position.

#### DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 shows a basic position, one of several possible mechanical configurations, for the display screen 12 of the notebook computer 10 disposed in a folded fashion for easy access to the display surface 12 for operation in a touch mode. This first illustration corresponds to one of several possible usage "modes". A key element of the innovative design includes a tri-fold mechanical structure for use operationally by touch and with provision for a detachable keyboard 14. The detachable keyboard 14 is preferably a cordless model. An RF-based keyboard is preferable to one which functions through use of IR because of the advantages which arise when line-of-sight constraints can be avoided. The keyboard would typically include a built-in pointing device and preferably a TrackPoint device as designed and offered by IBM Corporation. Further, as is illustrated in FIG. 1, the keyboard is stowable within the body of the notebook computer 10 and is operational in a remote or stored position.

The tri-fold mechanical structure of the notebook computer 10 comprises a base section 16 typically housing the HDD, FDD, DVD, or CD-ROM drives, not shown but well known in the market place, and an assortment of connectors and power electronics, a middle section 18 which may contain the system motherboard and/or speakers, and a display section 20 typically housing a flat-panel display 12, a touch-screen overlay 22 which is disposed over the display 12, and optional speakers, not shown.

FIG. 1 illustrates the outside decorative side of mechanical guide rails 24 and 26, as seen in FIG. 2, that are provided along the right and left edges of the sides, respectively, of the top surface of the base section 16. Guide rail 24, is typical, and is partially broken away at area 23 and the view in circle 50 better illustrates the inter rail 21 which accommodates the slide pin 25 attached to the frame portion of the display section 20. Engaging the guide rails 24 and 26 are guide assembly connectors 28 and 30 included at the bottom two corners, i.e., right and left corners, of the display section 20. These engagement features include, by way of example, spring-loaded assembly pins 25 and 27 each with a manual release button, and can be coupled with, by snapping into, the guide rails 24 and 26 at any point along the length of the rails 24 and 26, which extend from approximately the front face of the base section 16 to the back portion where the base section 16 is joined to the middle section 18 at a first hinge 29.

These engagement features include, by way of example, spring-loaded assembly pins 25 and 27 each with a typical manual release button or knob, which can be manipulated or pulled to further compress the coil spring, and then released for the pin 25 to travel in the opposite direction to be coupled with the guide rails 24 and 26 at any selected point or location along the length of the rails 24 and 26. The rails 24 and 26 extend from approximately the front face of the base section 16 to the back portion where the base section 16 is joined to the middle section 18 at a first hinge 29 or a pair of like hinges. The assembly pins 25 and 27 can be easily guided in to and out of the guide rails 24 and 26, to be carried within the guide slot 21, at either the front and open end of each guide rail 24 and 26, or can be slide into the guide slot 21 at a more rearward location at slot opening 17, as best seen in FIGS. 1 and 2.

The assembly pins 25 and 27 can be fixed at locations along the guide rails in any of a multitude of fashions. This could be accomplished by moving the pin 25 in and out by first pulling on the knob to release the pin 25 from its location along the guide rail, changing the viewing angle of the display screen 20 and then resetting the pin 25 in a different location.

The construction of hinge 29 is exemplary and can be constructed as a live-hinge of a suitable and durable plastic polymer material or a hinge in the traditional sense having a connecting pin or rod coupling a pair of butt hinge portions each, respectively, attached to display section 20 and the middle section 18. Also the hinge may be suitably disposed, as would be a piano hinge, to extend the entire width of the display and middle sections 20 and 18, or alternatively disposed as a pair of hinges, as shown, at the outer width extremities of the display section 20. However, alternatively, if of appropriate strength and structure, the hinge can be disposed centrally approximately midway between the extremities of the width of the display section 20. This construction of the hinge's suggested alternatives apply equally as well to the hinge 52 at the upper portion of the middle section 18 and its attachment to the display section 20.

The coupling of the positioning pin assemblies 25 and 27 of guide assembly devices 28 and 30, with the guide rails 24 and 26 at any point along the guide rails, allows the display 12 to be positioned at different angles to the base section 16, which facilitates the viewing angle, at which the user observes the display screen 12. The viewing angle is a function of the folding angle 54 shown in FIG. 1. When so engaged and oriented one to the other, the display section 20 and the middle section 18 form a rigid "A-frame" structure on top of the base section 16, where the folding angle 54, as shown in FIG. 1 can vary anywhere from approximately 0 degrees to 60 degrees, as shown here. In fact, as illustrated in FIG. 3, the folding or viewing angle 54 may vary anywhere from an angle formed when the display is housed tight up against the inside surface of the middle section 18, as illustrated in FIG. 2, which at that position approximates an angle of zero degrees, to an extended position when the display section is laid substantially flat-out beyond the point where its corners are coupled with the guide rails, to form an angle with the middle section 18 of approximately one hundred eighty degrees.

The positioning of the angle of the display screen 12 can be varied infinitely along the guide rails 24 and 26 by any accommodating device or assembly which provides a fixed location by a pressure clamping method or, alternatively, the angle could be fixed by predetermined locator holes or detents which provide a gradation for positioning at marked